

### **REMARKS**

Claims 1-3, 5 and 6 are pending and under consideration in the above-identified application.

In the Final Office Action dated March 17, 2008, the Examiner rejected claims 1-3, 5 and 6.

With this Amendment, claim 1 was amended and claim 2 was cancelled. No new matter has been introduced as a result of the amendments.

#### **I. 35 U.S.C. § 103 Obviousness Rejection of Claims**

Claim 1 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Nagura et al. (JP 2002 373643) in view of either Hisashi et al. (U.S. Publication No. 2005 0153205), Fujimoto et al. (U.S. Publication No. 2004 0058245), Park et al. (U.S. Publication No. 2002 0136955) or Masaki et al. (JP 2001 015101). Applicants respectfully traverse this rejection.

Claim 1 requires an active material that includes base particles of a lithium oxide compound and a transition metal with a coating layer made of an inorganic compound *and* a carbonaceous material. The inorganic compound is a compound oxide of at least one selected from the group of  $\text{LiFePO}_4$  and  $\text{Li}_3\text{PO}_4$ . The coating layer is mechanofused in order to fuse the inorganic compound and the carbonaceous material into a new material that is a mixture of a lithium oxide compound and a transition metal. Additionally, claim 1 also requires a weight ratio between the base particle compound and the coating, which is 98:2 to 70:30 and that is represented by the formula  $A:(B+C)$ , where A is the weight of the compound oxide, the coating layer is represented by B, which is the weight of the inorganic compound and C, which is the weight of the carbonaceous material.

Nagura et al. teaches a positive active material that is covered by three individual components, a lithium ion conductivity polymer (2), an electric conduction agent (3), and an inorganic solid electrolyte (4). Nagura et al., Paragraph [0010]. Specifically, the “*the polymer powder covers so that the active material particle front faces other than the part with which the powder of a bonnet, an electric conduction agent, and an inorganic solid electrolyte is selectively covered with the polymer powder.*” *Id.* (emphasis added). As shown in figure 1, the lithium ion conductivity polymer *only* covers the active material particle where either the individual particles of an electric conduction agent or the individual particles of inorganic solid electrolyte do not cover the active material particle.

The claims, however, require a coating that is mechanofused in order to create *one* material. As such, the portions of the active material that are covered with the coating material are covered by a material that includes a mixture of an inorganic compound *and* a carbonaceous material rather than an active material that has three different types of coatings (a lithium ion conductivity polymer (2), an electric conduction agent (3), and an inorganic solid electrolyte (4)), as taught by Nagura et al. Accordingly, Nagura et al. does not teach or even fairly suggest one coating that consists of a mixture of particles, rather Nagura et al. teaches three types of coatings, all of which are made of one particle type which cover selective parts of the active material.

Even though Yamaura, Takada and Mohwald teach the use of lithium iron phosphate and lithium phosphate as known conductive materials, none of the references teach or even fairly suggest that lithium iron phosphate and lithium phosphate may be effective components of a coating as required by claim 1. Yamaura et al. teaches a non-aqueous electrolyte that may include the solid electrolyte  $\text{Li}_3\text{PO}_4$ . Furthermore, Nagura et al. does not teach or even fairly suggest combining an inorganic compound, much less  $\text{LiFePO}_4$  and  $\text{Li}_3\text{PO}_4$  because as discussed

above, Naugura et al. specifically teaches three different coatings, each made of one type of compound rather than one coating made of a mixture of compounds as required by the claims. As such, the references are not combinable.

Nagura et al. does not teach the same weight ratio as required by the claims. The Examiner suggests that because Nagura et al. teaches particle weights of 10 grams to 1 grams, that “the weight ratios of the particles will clearly be at least 70% but less than 98% relative to the coating layer 2/3/4.” However, the amount of material discussed in Naugura et al. relates to the *preparation* of the active material and each of the coatings and not the relationship between the actual amount of the coating that is applied to the active material as required by the claims. Applicant respectfully request that the Examiner provide further proof that Nagura et al. teaches the same weight ratio as required by the claims.

As such, the cited references taken either singularly or in combination with each other fail to teach or even fairly suggest all the required elements of the claims. Thus, claim 1 is patentable over the cited references. Accordingly, Applicant respectfully requests that the above rejection be withdrawn. Additionally, Applicant requests that the rejection of dependant claim 3, which is based on part on Nagura, Hisashi, Fujimoto et al., Park et al. and Masaki et al. be withdrawn for at least the same reasons.

Claim 2 was rejected of as being unpatentable under 35 U.S.C. § 103(a) in part over Nagura et al. in view of either Hisashi et al., Fujimoto et al., Park et al. or Masaki et al. in further view of Yamaura et al. (U.S. Patent No. 4,668,594); Takada et al. (U.S. Patent No. 5,958,281) or Mohwald et al. (U.S. Patent No. 6,475,663). With this Amendment, claim 2 was cancelled. Accordingly, this rejection is now moot and Applicant respectfully requests that the above rejection be withdrawn.

Claims 5 and 6 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Nagura et al. in view of either Hisashi et al., Fujimoto et al., Park et al. or Masaki et al. in further view of Yamaura et al., Takada et al. or Mohwald et al. Applicants respectfully traverse this rejection.

Claim 5 requires a nonaqueous electrolyte secondary battery that includes an active material having base particles of a lithium oxide compound and a transition metal with a coating layer made of an inorganic compound and a carbonaceous material. Claim 5 also requires a weight ratio between the base particle compound and the coating, which is 98:2 to 70:30 and that is represented by the formula  $A : (B+C)$ , where A is the weight of the compound oxide, B is the weight of the inorganic compound and C is the weight of the carbonaceous material. Additionally, Claim 5 requires that the inorganic compound includes a compound oxide of at least one lithium oxide compound that is selected from  $\text{LiFePO}_4$  and  $\text{Li}_3\text{PO}_4$ .

As discussed above, the Nagura et al. does not teach combining more than one compound to make a coating. Additionally, Nagura et al. does not teach the same weight ratio as the claims, because Nagura et al. teaches the amount in preparation of the material rather than the actual application of the coating to the active material. Furthermore, because Nagura et al. does not teach or even fairly suggest combining an inorganic compound with another compound to create one coating, Nagura et al. is not combinable with the cited references that teach the use of  $\text{LiFePO}_4$  and  $\text{Li}_3\text{PO}_4$  as known conductive materials, but not as a coating for an active material. Accordingly, taken either singularly or in combination with each other, the cited references fail to teach or even fairly suggest all the requirements of the claims 5 and 6. Thus, claims 5 and 6 are patentable over the cited references. As such, Applicants respectfully request the above rejection be withdrawn.

## **II. Conclusion**

In view of the above amendments and remarks, Applicants submit that all claims are clearly allowable over the cited prior art, and respectfully requests early and favorable notification to that effect.

Respectfully submitted,

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